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Fish and Other Animals
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Abstract

Common themes emerge from the stories told by the other papers in this panel. First, local people, whether indigenous or fairly recent arrivals, know their terrain and its ecology exceedingly well, and their knowledge is not only useful but almost certainly necessary in any management scheme. Second, they are under great economic pressure to produce; this often leads to unsustainable production (overfishing, overhunting, overgrazing). Third, intervention by the nation-state can be beneficial if sensitively done in a comanagement context (Pinkerton) but is often counterproductive, being difficult to understand and administer (Alcalá, Cruz Torres; Hedrick's related poster) or downright disastrous. This is typically because the state rarely is able to resist the temptation to invoke top-down, command-and-control strategies. This tends to preclude using the knowledge of the people on the ground. A competition between local expertise and "official" or "scientific" expertise often develops, limiting the use of either one. Top-down control also risks alienating them even when it stops short of actually dispossessing them. (All our cases involve people secure of their land tenure, but not always secure of their rights to manage their animal resources.) On the other hand, we report some successful plans, basically cases in which the state could develop a satisfactory dialogue with the people on the ground. In such cases, local knowledge can be effectively joined to mainstream biological knowledge. The extreme difficulty of managing animals in today's world guarantees that all stakeholders must cooperate, but also renders cooperation difficult.

These studies fit in a world context, comparing them with experiences in fisheries in Hong Kong and Malaysia, and game and forest management in Mexico's Yucatan Peninsula. Discussion will relate the papers to theory in common property management and political ecology.

The papers in this session record some of the vicissitudes of biotic resource management in the modern world. Most of our concern lies with common property resources, whether they are community-owned, government-owned, or open access (de facto unowned).

Fish are notoriously among the most difficult of all resources to manage, collectively or otherwise. A long literature records the dismal failures that have characterized the world's attempts to regulate fisheries (particularly notable works, summarizing the rest of the literature, are Dyson 1977; McEvoy 1986; McCay 1998; Safina 1997). A much shorter, but still substantial, literature records some successes

(Acheson 2003; Berkes 1999; Dyer and McGoodwin 1994; Johannes 1983; Nietschmann 1973). Even the cynics are convinced. Shankar Aswani (1999) initially took a position that humans simply could not be unselfish enough to regulate a fishery, but experience convinced him otherwise; he has found that Solomon Islanders did indeed manage their fishery quite well, except when external events ranging from war to natural perturbations to modern market economies disturbed the system.

Fish provide, therefore, a rigorous test case for both the theory and practice of common property resource management. Among other things, they provide us with a question of considerable point: Why is it that such remote and simple societies as the Torres Straits and Solomon Islanders can manage their fish so well, when the most enlightened, modern, and science-rich nations in the world—those ringing the North Sea—have totally failed for 400 years to manage their herring stocks?

There are several obvious answers to this question. All are partial; all capture some of the variance. All are expectable from what we know about common property management (Ostrom 1990).

First, local communities know their resources very well indeed. Nations have to manage huge, poorly known, poorly defined stocks, and often have conflicting experts to deal with.

Second, local communities are long-established, tightly integrated, and often reasonably consistent in political culture over long periods.

Third, local communities that make fish conservation work are those with defensible title. Either they have sea tenure outright, or they can defend access to the fish, or at the very least they can defend breeding areas and other areas critical for stock recruitment.

Fourth, to be successful, they have to have full enforcement powers. They have to be able to stop poachers.

Some of us have argued for many years now that there is a fifth requirement:

Successful management requires intense emotional involvement in the community and its welfare, and, to be really effective, in the fish too. Ideally, the fish should be part of the community. Good management takes place in those cultures that regard fish as persons, rational beings that can communicate to at least some extent with humans. The very best management seems to occur in cultures that believe fish are people who offer their lives as a sacrifice for their beloved friends and relatives here on earth. Fish in these cultures are regarded with respect and gratitude. Ceremonies and ceremonial methods of dealing with fish, including such matters as returning bones to the water, are critically important. They involve people actively in the ritual construction of caring and tending. (For some selected examples, see Callicott and Nelson 2004; Davis 2000; Hunn 1991; Jenness 1955; Johannes 1983; Swezey and Heizer 1977. I am currently engaged in research on this matter in the literature on Northwest Coast ethnography.)

This last is what is lacking in the North Sea. However much the nations in question may love herring, they see herring as merely another protein source. They are perfectly willing to substitute beef, ham, or imported frozen fish. They therefore do not see it as worth the time, effort, and money required to make serious treaties and police the North Sea to enforce those. It seems evident, from the record of history, that the financial rewards of such treaty enforcement would be many times higher than the costs, but

politicians are generally under constraint to do many things with very limited budgets. Long-term payoffs do not get consideration.

Commercial fishermen are caught in a well-known and agonizing bind: they have to keep maximizing their catches, even when they know the stocks are in danger. They are prone to support less regulation than is optimal.

I argue, then, that, in political calculus, long-term payoffs, even the largest and most certain, never win over short-term ones, even the smallest and most trivial, unless it is driven by some powerful additional social force—religion, ideology, community solidarity, preferably all three. A rational individual maximizing his or her profit can take the long term and operate from enlightened self-interest, but a political entity cannot do this unless the body politic is animated by ideology. (I fear I am coming perilously close to Mancur Olson's level of cynicism [Olson 1965], but I do not agree with him that people never act for the general good unless baited. I am making a different point: the pressure on politicians, as on economic maximizers in a risky and/or uncertain situation, is to go for short-term and narrow interest, and forget the long-term and wide-flung interests. Individuals with long-range security can afford to set appropriate discount rates, but political entities are subjected to so many pressures to succeed in the short term or to reallocate resources elsewhere that they are often forced to mismanage. This reaches an extreme in the case of fish, because fish are usually seen as merely a minor protein source. Unlike forests, they do not have a large, passionate advocacy group that loves them for their beauty and romance alone, though sport fishermen fill something like that role for trout and salmon. Wetlands are similarly unloved, but at least the destruction of wetlands is usually part of developing agriculture or urban housing; destruction of fish stocks is generally pure cost, an unmitigated disaster.

Another political problem fish have is that those who care about them and catch them are often poor and marginal. In 2002, drought forced the water authorities of the Klamath Basin in northern California and neighboring Oregon to economize on water. They had to choose between unique, high-value, irreplaceable and endangered fish runs and the production of cattle, barley, and potatoes—all overproduced in the US. They did the best they could, releasing enough to keep the fish runs alive, but the Bush administration intervened and demanded that water go to farmers. In economic and ecological terms, this choice borders on the insane. Not only are the fish endangered; they are worth several dollars a pound. The potatoes are worth a very few cents a pound. The reason for such an irrational choice, of course, is that the fish are caught largely by Indians and other impoverished and marginal people, while the farmers are rich, politically powerful, and frequently Republican. The Bush administration has called for a review of the whole matter, with a board stacked heavily in favor of the farmers and against the fish and fishermen. Accusations of “junk science” have flown on both sides. In fact, no one knows the exact amount of water the fish need, but clearly it is more than they got; allocation of water to farms was followed by a huge salmon kill on the Klamath River.

This was rather reminiscent of the problem I found in Malaysia (Anderson and Anderson 1978). Fish conservation was effectively practiced by some communities, but these were Chinese and less than affluent. This was a double handicap; the government favors Malays, and it is as responsive as most governments are to more well-to-do donors and backers. The government took over the task of regulating fisheries and controlling

overfishing. Unlike the small communities, the government had neither the will nor the capacity to do this successfully. The fishery collapsed.

In general, species do better, politically, if they are large, furry or feathery, and visible. Charismatic megafauna gets attention. Best of all is to be hunted by rich people. Ducks Unlimited almost single-handedly stopped the Bush administration from throwing open America's wetlands to almost unrestricted draining, after the administration had dismissed all the conservation and environmental organizations without a hearing. Fish have the disadvantage of being invisible in the water, and not very charismatic. Again, the best thing they have going for them is that some sportspersons' organizations do work for them.

Being large and furry does not always work, however. Game animals in Mexico, as in much of the world, are disappearing rapidly (Alvarez del Toro 1991; Simonian 1995). Hunting laws are strict and adequate, but virtually never enforced. Again, community management works—sometimes. However, here, study has shown that even the most conservation-minded communities cannot always enforce their rules. Meanwhile, modernization is reducing the degree of commitment. The Yucatec Maya of Quintana Roo had excellent indigenous ideas of animal conservation (Almanzo 2001; Anderson and Medina Tzuc 2004; Llanes Pasos 1993). They are gradually losing these. Moreover, population pressure is making even excellent rules rather too weak; if every hunter takes only one deer, there will still be no deer left in a very short time. The federal and state governments have cooperated in comanagement projects, working with local communities to save the game. These have worked where the communities are small, isolated, and united. They have not worked where the communities were more populous, on main roads, and/or fractionated—poachers are too hard to catch (Anderson and Medina Tzuc 2004; Jorgensen 1998).

The contrast with deer in the United States—and, increasingly, in north Mexico—is striking. Well-to-do hunters and Bambi-literate suburbanites have not only saved the deer; they have turned the deer into genuine pests in several parts of the eastern United States. (If only we in California were so lucky. Drought caused by global warming, and other mismanagement of the land, is killing off our deer.) I have heard that in some parts of the east, deer are “on the pill,” at considerable public expense.

Kim Hedrick's findings are of a very different sort superficially, but speak to the same problems and themes. She has studied the ranchers of eastern California. This is a land of desert valleys and lush, verdant mountains. The stock must be driven up to the mountains in summer when the desert dries out, down to the desert in winter when the mountains are covered by snow. Supplementary hay is needed, and is raised in irrigated fields in rich alluvial soil areas of the desert. The snowmelt from the mountains feeds these alfalfa and grass plantings. Almost all the land is public—either national forest or watershed land owned by the Los Angeles Dept. of Water and Power. Ranchers own only their homesteads, irrigated fields, and core areas of mountain meadow. Thus, they must lease public land. This brings them into conflict with highway builders, developers, environmentalists, hunters, off-road vehicle riders, and countless other special interests that vie for public land rights.

Use of public lands is subject to conflicting pressures. Public-land ranching is heavily subsidized by the United States government. On the other hand, the price of

getting these subsidies is that ranchers must conform to complex and detailed rules. These add up to a contradictory agenda. Ranchers are subsidized and given leases for beef production only; unlike ranchers who own their own land, they cannot experiment with game ranching, exotic animals, silviculture, or other types of specialized production. On the other hand, they are expected to take care of the environment. Overgrazing and degradation of riparian habitats—spectacularly obvious in the past—are theoretically no longer allowed. Unfortunately, nobody really knows how to measure “overgrazing” and “habitat degradation” in the fantastically complex, fluctuating, and dynamic environment of eastern California. (For example, one year may produce ten times the rainfall of the previous year. Earthquakes occasionally reshape the land—a large lake in the study area was created by a single earthquake in 1872!) This sets the stage for conflict between ranchers, who know the land intimately but are trapped in a beef-maximization game, and government biologists, who want to protect the environment for multiple uses, but do not know it as well as the ranchers do. As with fish, both risk and uncertainty are high. Decision-making is therefore complex and contingent. It is certainly arguable that the degradation of riparian areas and other habitats is due to conflicting and overly bureaucratized laws, rather than to ranchers’ irresponsibility.

Significantly, similar problems occur in East Africa, where the grazer societies are very different indeed, but face the same conflicts over land use and rigid government policies (see e.g. Bates 2004; Fratkin 2004; McCabe et al. 1992). There, privatization and other derangements of traditional land management have not only impoverished many cattle herders; they have also devastated the wildlife, which existed symbiotically with herders. The herders, for instance, kept the grasslands open by burning brush; excluding them from wildlife refuges has led to growth of brush and consequent decline of large herbivores (I have had the opportunity to visit these areas and thoroughly confirm McCabe’s observations).

In these cases, we see the problems of regulating commons when bureaucratic regimes try to regulate traditional societies that have their own adjustments to the land. James Scott’s observations in *Seeing Like a State* (1998) fully apply. States want, first of all, to maintain orderly control, or the appearance of it. Economic and ecological devastation is acceptable as a consequence. Yet, on the other hand, unrestricted grazing has devastated many areas too (though not East Africa or east California). As usual, some form of Lyn Pinkerton’s comanagement is necessary. When there are many stakeholders with conflicting goals, the only reasonable procedure is to find out as much as possible about what is going on—and this means asking the people on the ground—and then getting all the people involved to come up with some sort of practical plan, even if that means locking them in the library till they shut up and deal. (This was the Quincy Library Plan strategy, which produced a reasonable though not optimal plan for managing the forests of northeastern California.)

In short, looking at fish management, game management, and cattle management leads us to the same conclusions. First, people do tend to overuse and overharvest resources. Second, the only strategy that seems to work very well is comanagement. Some higher level of government, with a very strong commitment to conservation and with a capability to mobilize good science, has to work with the communities on the ground, who have the advantage of ongoing interaction with the environment. The local

people will often know the actual facts better than the government scientists do, but the scientists know the models and possibilities. Good-faith dealing is necessary to success. Also, giving privileged status to one group must be done very carefully, and with a clear idea of possible long-term consequences. Privileging beef production in the mountain west once looked like a good idea; it does not necessarily look that way to everyone today.

Micromanaging from the top, by bureaucrats who have no knowledge of on-the-ground conditions, seems as bad a vice as allowing unrestricted open-access appropriation to run unchecked (see Scott 1998, Dichter 2003). Both seem equally fatal to the commons.

Local schemes for managing commons resources continue to be understudied, and to receive little more than lip service from the relevant agencies. Traditional regimes are not perfect, but they are usually the perfect place to start, if only because they have some real on-the-ground legitimacy.

All these matters take place, today, against a rapidly changing background. Three particularly ominous trends are impacting all the world's animal management systems.

First, global warming is rapidly changing climates. Ranching in the intermountain west may be history within the next ten years, given the rapid and dramatic shift to hotter and drier conditions.

Second, a considerable majority of humanity now dwells in cities, and has little experience of or knowledge of rural affairs. This means not only that most people cannot evaluate management on the basis of their own experience, but also that they have minimal incentive to care. They do not have the love of the land that comes from working on it and with it.

Third, and I believe most serious, is the very rapid consolidation of more and more power and wealth in the hands of fewer and fewer people. Meaningful comanagement will not be possible if only a handful of individuals run everything in the world. In addition, most of the powerful people are closely associated with extractive industries famous for narrow, short-term planning: the oil industry, the agribusiness world, the giant mining corporations. Most of the rest are involved in the international banking and money-managing sector, also noted for its narrow, short-term approach (see Stiglitz 2002).

If these trends continue unchecked, higher animal life on earth will disappear, humans included. Preventing such a tragedy requires immediate action to give the ordinary people on the ground a real voice and real power.

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